

CLAIMS

We claim:

1. A voltage generator, comprising:

a reference voltage generator capable of generating first and second reference

5 voltages;

a differential amplification drive circuit capable of generating an output voltage responsive to the first and second reference voltages;

a resistance/diode reference voltage generator capable of generating third and fourth reference voltages; and

10 a pull-up/down drive capable of changing the output voltage responsive to the third and fourth reference voltages.

2. The voltage generator of claim 1 where the voltage generator comprises a plurality of serially connected resistances.

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3. The voltage generator of claim 1 where the differential amplification drive comprises:

a first differential amplifier capable of generating a first drive signal by comparing the second reference voltage with the output voltage;

20 a second differential amplifier capable of generating a second drive signal by comparing the first reference voltage with the output voltage;

a first drive transistor capable of driving the output voltage responsive to the first drive signal; and

25 a second drive transistor capable of driving the output voltage responsive to the second drive signal.

4. The voltage generator of claim 1 where the resistance/diode reference voltage generator comprises a plurality of serially connected transistors connected, in turn, between a voltage source and ground.

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5. The voltage generator of claim 4 where the serially connected transistors are MOS transistors.

6. The voltage generator of claim 5 where the resistance/diode reference voltage generator generates the third and fourth reference voltages according to a size of the serially connected MOS transistors.

5 7. The voltage generator of claim 1 where the pull-up/down drive comprises a plurality of serially connected transistors commonly connected to the output voltage.

8. The voltage generator of claim 1 where the first reference voltage has a voltage level greater than the second reference voltage.

10 9. A voltage generator, comprising:
a first resistance connected between a power terminal and a first node;
a second resistance connected between the first node and a second node;
a third resistance coupled between the second node and a ground terminal;
15 a first differential amplifier having a first input connected to the second second node and a second input connected to an output terminal;
a second differential amplifier having a first input connected to the first node and a second input connected to the output terminal;
a first pMOS transistor having a source, drain, and gate, the source being connected to
20 the power terminal, the drain being connected to the output terminal, and the gate being connected to an output of the first differential amplifier;
a first nMOS transistor having a source, drain, and gate, the source being connected to the ground terminal, the drain being connected to the output terminal, and the gate being connected to an output of the second differential amplifier;
25 a second nMOS transistor having a source, drain, and gate, the source being connected to the output terminal and the drain being connected to the power terminal;
a second pMOS transistor having a source, drain, and gate, the source being connected to the output terminal and the drain being connected to the ground terminal;
a third pMOS transistor having a source, drain, and gate, the source being connected
30 to the power terminal, the drain being connected to a gate of the second nMOS transistor, and the gate being connected to the output terminal;
a third nMOS transistor having a source, drain, and gate, the drain and gate being commonly connected to the drain of the third pMOS transistor;

a fourth pMOS transistor having a source, drain, and gate, the source being connected to a source of the third nMOS transistor and the gate and drain are commonly connected to the gate of the second pMOS transistor; and

5 a fourth nMOS transistor having a source, drain, and gate, the source being connected to the ground terminal, the drain being connected to the drain of the fourth pMOS transistor, and the gate being connected to the output terminal.

10 10. A voltage generator, comprising:

a first resistance connected between a power terminal and a first node;

10 a second resistance coupled between the first node and a second node;

a third resistance coupled between the second node and a ground terminal;

a first differential amplifier having a first input connected to the second node and a second input connected to an output terminal;

15 a second differential amplifier having a first input connected to the first node and a second input connected to the output terminal;

a first pMOS transistor having a source, drain, and gate, the source being connected to the power terminal, the drain being connected to the output terminal, and the gate being connected with an output of the first differential amplifier;

20 a first nMOS transistor having a source, drain, and gate, the source being connected to the output terminal, the drain being connected to the ground terminal, and the gate being connected to an output of the second differential amplifier;

a fourth resistance connected between the power terminal and the output terminal; and

a fifth resistance connected between the output terminal and the ground terminal.

25 11. The generator of claim 10 where the fourth and fifth resistances are N-type MOS diodes.

12. The generator of claim 10 where the fourth and fifth resistances are P-type MOS diodes.

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